

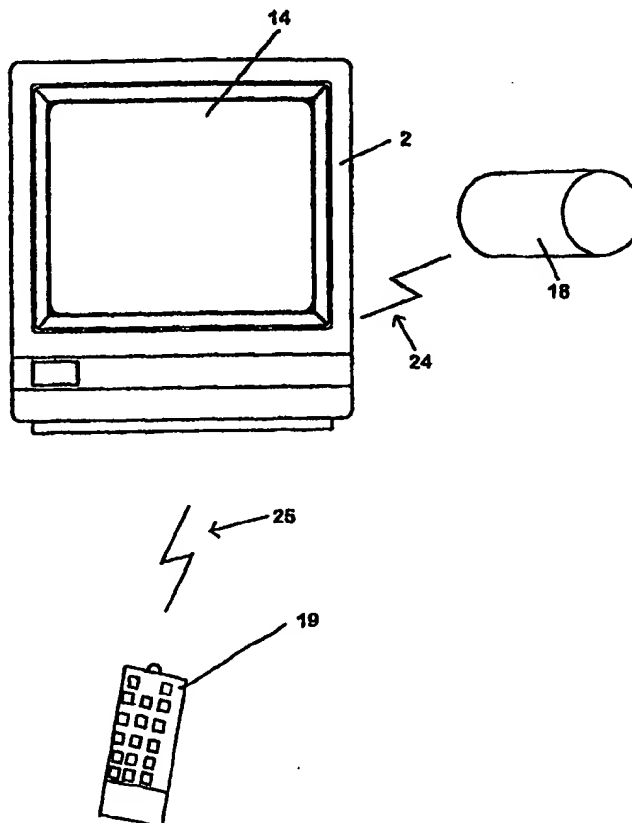


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(21) International Application Number: PCT/DK98/00525 (22) International Filing Date: 26 November 1998 (26.11.98) (30) Priority Data: 1358/97 26 November 1997 (26.11.97) DK (71) Applicant (for all designated States except US): FORCE ELECTRONICS A/S [DK/DK]; Stenholm 11, DK-9400 Nørresundby (DK). (72) Inventors; and (75) Inventors/Applicants (for US only): KAAGAARD, Jesper [DK/DK]; Poseidonvej 3, DK-9210 Aalborg SØ (DK). SØRENSEN, Jan, Skaug [DK/DK]; Fr. Raschsvej 10, DK-9400 Nørresundby (DK). (74) Agent: HOFMAN-BANG & BOUTARD, LEHMANN & REE A/S; Ryesgade 3, P.O. Box 367, DK-8100 Aarhus C (DK).		(81) Designated States: AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> <i>In English translation (filed in Danish).</i>

(54) Title: A METHOD AND AN APPARATUS FOR UPDATING TRANSMITTING SPECIFICATIONS**(57) Abstract**

When updating or supplying new television channels, in particular satellite channels for a plurality of television receivers (4), the individual television receivers communicate via a communications channel (24) with a database (18) in which the status of the transmitting specifications of the individual television channels and the establishment of new channels are currently monitored. The transmitting specifications are transferred via the communications channel (24) together with a teletext page which is specific for the individual channel, and which has already been given a code word that initiates transfers of transmitting specifications. The transmitting specifications are stored in the individual receiver (4) in a user part (21) and a machine part (22) which cooperate such that when a user tunes a programme, the user part (21) will be updated via the teletext page if changes have taken place in the transmitting specifications since the last tuning of the programme, which may e.g. be changes in frequency, satellite position, polarity, etc. Further, it is possible to upgrade the software of the individual receiver. This provides an unprecedented user friendliness that enables any user to find a channel, no matter whether the channel has changed transmitting specifications, or a totally new channel has been supplied. Also, the user will always have the software of his receiver updated, without having to send the entire receiver to the supplier.



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A method and an apparatus for updating transmitting specifications

- 5 The invention relates to a method of updating transmitting specifications of transmission channels, in particular satellite channels, in a plurality of television receivers.
- 10 The invention moreover relates to an apparatus for updating transmitting specifications of transmission channels.

In connection with the acquisition of parabolic equipment, which consists of an independent satellite receiver
15 adapted to receive television signals from a satellite, it is well known that it is difficult to install the equipment for most people.

First the parabolic reflector has to be set, and once it
20 has been set correctly, the individual channels must be tuned on the receiver.

This means that, typically via a remote control, it is possible via a menu to tune various programme parameters,
25 such as the frequency on which a given channel transmits, the satellite which transmits the programme, the type of signal which is transferred, and the polarity of the transferred signals. Further, the user is typically asked to state the program on which the channel concerned is to
30 be put.

All these tunings have been found to be rather cumbersome to people having no special insight in how a satellite system works. This means that most people faced with the
35 task of installing a new satellite system, in addition to the equipment itself, spend a good deal of money on hav-

ing a skilled person tuning the equipment. After the equipment has been tuned, the frequencies of the selected programmes, and perhaps their positions, are changed not infrequently.

5

Also, it could be that there are new channels on the satellite. This means that the satellite receiver has to be tuned again, and since the user usually did not do it originally, the user, when his receiver is to be updated, will not be able to perform the updating himself either. The user will thus not be aware of new programme options. In addition, a satellite receiver has incorporated software which should be updated frequently, which has previously been done in the manner that the satellite receiver has been sent to the supplier for exchange of the software, which has typically been in an EPROM.

Accordingly, it is an object of the invention to provide a method which enables a user to tune his satellite receiver and currently be certain that it is always updated.

The object of the invention is achieved by a method of the type defined in the introductory portion of claim 1, which is characterized in that the individual television receivers/satellite receivers communicate via a communications channel with a database containing data on transmitting specifications of the individual channels, and that the database is capable of transferring the transmitting specifications via the communications channel to the individual television receivers.

The satellite receiver will hereby constantly be updated from the database, which may e.g. be administered by the supplier of the receiver.

When, as stated in claim 2, the database currently monitors the transmitting specifications of the individual channels and currently updates these, the receiver will always be ready with the most recent information on the transmitting specifications of the individual channels.

It is stated in claim 3 that the updated transmitting specifications are transferred via one or more specific teletext pages. This allows utilization of an already existing communications channel in connection with the actual transmission to get the necessary information.

It is stated in claim 4 that when a user selects a transmission channel, relevant transmitting specifications for the transmission channel are selected from the transferred transmitting specifications, and the relevant transmitting specifications are used for tuning a circuit to receive the selected transmission channel. It is hereby ensured that the user need not be involved in the updating of the transmitting specifications. The tuning may thus take place automatically.

It is stated in claim 5 that the transferred data are stored in a storage, and that data are selected from the storage by means of a user filter. The user may hereby decide to leave out information e.g. in the form of information on channels or technical details.

When, as stated in claim 6, the data selected by the user filter are presented to the user, it is ensured that the user has access to the information in an easily accessible and well-arranged manner, as only information of interest is accessible.

It is stated in claim 7 that the user-defined filter comprises a function which makes it possible for the user to

conceal data which are stored in the storage. The user may hereby conceal information which is not interesting to the user, and which will therefore just confuse the user. By concealing channels instead of deleting them,
5 the user avoids the situation that the deleted channels are subsequently presented as new ones.

It is stated in claim 8 that following transfer of transmitting specification in a storage about channels not
10 known before, these are presented to the user. The user may hereby automatically be presented with information on possible new channels and leave these out, if so desired.

It is stated in claim 9 that the user-defined filter is
15 edited by means of a screen, which may show a menu, and by means of an operating panel. A particularly expedient user interface may be provided hereby.

When, as stated in claim 10, updated software versions
20 are additionally transferred via the communications channel to the individual receivers, it is ensured that the satellite receiver need not be removed from the site in order to exchange the software e.g. a so-called EPROM.

25 When, as stated in claim 11, the updated transmitting specifications are transferred via one or more specific teletext pages, the transfer may take place by a scanning of the teletext pages. This may be performed by using the information contents of a receiver teletext processor,
30 which permits updating of equipment of an analogue type by means of a communications link.

As mentioned, the invention also relates to an apparatus for updating transmitting specifications of transmission
35 channels.

This apparatus is characterized in that each of the individual receivers has two storages, of which the first storage contains data on the transmitting specifications of the individual channels, from which a user may transfer channel selection via an operating unit to a tuner in the television receiver. The second storage may receive data from a database containing updated and current transmitting specifications on the individual channels, which transmitting specifications may be transferred to the first storage.

The receiver may hereby be updated without the user discovering at all that an updating takes place, since the user does not have access to the storage in which the updating takes place.

As stated in claim 13, it is an advantage that the transfer of data between the two storages takes place without involvement of the user.

Advantageously, as stated in claim 14, the circuit according to claim 12 or 13 may be implemented in that it additionally contains a circuit array adapted to receive a teletext page whose contents have been changed by a supplier for transferring an updated software version in the receiver.

The invention will now be explained more fully with reference to the drawing which shows embodiments, and in which

fig. 1 shows a set-up of ordinary television equipment,

fig. 2 shows the basic principles according to the invention,

fig. 3 shows a basic structure of an apparatus for use according to the invention,

5 fig. 4a shows a block diagram of a satellite television system adapted to transmit teletext pages on a television channel,

10 fig. 4b shows a block diagram of a satellite television system adapted to receive satellite channels and associated teletext pages, and

fig. 5 shows a flowchart of a method according to the invention.

15 As will be seen in fig. 1, a television system 1 consists of a television apparatus 2 connected to a receiver 4 and a video apparatus 3.

20 As will be seen, an antenna, shown here as a VHF antenna 17, is connected to the television receiver 2 via a cable 5 to the video apparatus 3, from which television signals are transferred via the plug 6 to the television apparatus. Additionally, a receiver 4, shown here as a satellite receiver, is connected to the television apparatus 2
25 and the video 3, respectively, the connection to the television receiver 2 and the video 3 taking place by means of so-called SCART cables 7, 8. Further, two parabolic antennas 12, 13 are shown here for the receiver 4, which are adapted to receive satellite channels. Of
30 course, nothing prevents connection of more parabolic reflectors than the two shown in fig. 1.

Fig. 2 shows an embodiment of the principles of the invention.

This figure also shows the television receiver 2, but not the satellite receiver 4 from fig. 1.

As will be seen, fig. 2 shows a remote control unit 19 by means of which a user may operate the television receiver 2 for selecting channels, which may be of the VHF/UHF type, or receiving satellite channels/cable distributed television channels. In particular for use in the reception of satellite channels, the television receiver 2 is connected via the satellite receiver 4 (not shown) to a database 18 via a communications link 24. This database 18 is updated currently with the technical transmitting specifications of the individual channels, which may consist of the frequency on which the channel sends, the satellite position from which it receives, the polarity of the transmitted signals, the signal format type, etc. Also, encryption codes and types are changed, and channels are moved, inter alia to avoid the situation that users who have no authorized access to the channels, but use illegal pirate cards to receive the channels, can do so.

According to the invention, the database is updated frequently, and as soon as changes in the transmitting specifications of the channels occur, or access is provided to new channels, this information is transferred to the individual satellite receivers, as explained more fully in connection with fig. 3.

Fig. 3 also shows the database with the communications link 24 to a circuit 20 in a video receiver, e.g. the video receiver 4 in fig. 1. The circuit 20 contains two storages 21 and 22, the storage 21 being adapted to transfer user-defined channels from the satellite receiver for display on a television apparatus 20. Fig. 3 moreover shows a storage 22 which, as mentioned, communi-

cates with the database 18 via the communications link 24. This storage stores the transmitting specifications of all the channels, and as soon as changes take place in some of the transmitting specifications, these are transferred automatically or manually from the database 18. Additionally, transmitting specifications on any new channels are transferred.

As soon as the user tries to get access to a channel 21, data will be transferred from the storage 22 to the storage 21. In other words, the two storages may be called a "user storage" and a "machine storage", respectively, there being no access for the user to the "machine storage".

An embodiment will be described below in more detail.

Fig. 4a shows a block diagram of a satellite television system which is adapted to transmit teletext pages on a television channel. The satellite television system 410 comprises a transmitter 412 which may transmit teletext pages on a television channel via a transmitting antenna 413. The transmitter 412 receives teletext pages from a database 411 which is currently updated with information on transmitting specifications for a plurality of television channels. The transmitting specifications may e.g. comprise transmitting frequency of a given television channel, polarization of the television signal on the given channel and the position of the satellite transmitting the satellite television channel. The transmitting specifications may be transmitted as text on an ordinary teletext page.

Fig. 4b shows a block diagram of a satellite television system which is adapted to receive satellite channels and associated teletext pages. The satellite television sys-

tem comprises an apparatus 401 according to the invention. The apparatus 401 is connected to a parabolic antenna 402, so that the apparatus may receive satellite television signals. The apparatus 401 is moreover connected to a television receiver 403 which can show pictures from a satellite television channel.

The apparatus 401 comprises a receiver unit 404 which is adapted to receive satellite television signals and decode the signals so that television signals on selected channels may be extracted. The information on the selected channels comprises ordinary television channels including teletext signals. By means of a so-called teletext page scanner 405 information is extracted from a selected teletext signal on a selected television channel on transmitting specifications of a plurality of television channels. Thus, by scanning a single teletext page on a single channel it is possible to obtain information on the transmitting specifications of several channels.

The information extracted by the teletext page scanner 405 is stored in a current table 406 which contains the transmitting specifications received last. By suitably frequently extracting the said information and transferring this information to the current table 406 it is thus ensured that the table 406 contains updated information - of course on condition that the transmitting specifications transmitted are always updated.

With a view to allowing selection of a desired one of the channels that can be received, the apparatus 401 comprises a channel selector/user filter 409. The channel selector/user filter 409 may be operated by the user via a user interface UI in such a manner that the user selects a desired channel on the basis of the name of the channel, e.g. associated with a specific key on an oper-

ating panel. Moreover, via the television receiver 403 the user has the possibility of adapting his user interface/menu by selecting the channels which are to be visible and by naming the channels according to his own wishes.

If a user has not actively decided not to have a given channel shown, this will be presented to the user. The user is hereby presented with any new channels.

10

When a channel selection is made via the channel selector 409, a signal is applied to a table updating unit 407. The table updating unit 407 transfers the contents or items in the table which have been updated since the last transfer of the current table 406 to the channel table 408. The channel table 408 thereby contains the most recently updated information on the transmitting specifications. The same signal causes the transmitting specifications for the channel selected to be transferred from the channel table 408 to the channel selector 407, so that the user need not worry about possibly updated transmitting specifications.

In a situation where a channel is placed on another frequency e.g. for technical reasons, the system will thus cause the channel selector to be updated, so that the user can still use the key which he/she usually uses for selecting the channel.

The user filter 409 allows the user to select and have presented the information on the television channels in which he/she is interested, to select a plurality of channels or to name the channels in his/her own way. The information may e.g. be presented as a menu on a television screen. The user filter corresponds to the "user storage" mentioned previously. The current table and the

channel table correspond to the "machine storage" mentioned previously.

Fig. 5 shows a flowchart of a method according to the invention. The method may e.g. be stored as a programme in
5 a memory and be run by a computer having access to the memory. The computer may form part of the apparatus shown in fig. 4b and be connected to the individual units for controlling these.

10

The method is started and initialized in step 501 of the flowchart. This may e.g. take place when the apparatus shown in fig. 4b is turned on, and may inter alia comprise specifying which teletext page on a given television
15 channel contains information on the transmitting specifications.

The specified teletext page is scanned in step 502 to extract information on the transmitting specifications, and
20 the transmitting specifications are stored in a current table in step 503. The process comprising the steps 502 and 503 is repeated currently so that updated transmitting specifications are available at any time.

25 Once the transmitting specifications have been stored, it is decided whether a new channel is selected in step 504. If a new channel (Y) is selected, a channel table is updated with the last-obtained information from the current table in step 505, provided that some of or all the
30 transmitting specifications have been changed since the last channel selection. In step 506 relevant transmitting specifications are transferred to a channel selector, and in step 507 the channel selector is tuned in response to the most recently updated transmitting specifications.
35 The selected channel may hereby be shown on a television receiver, no matter whether the transmitting specifica-

tions have been changed since the channel was selected the last time. After step 507, the method returns to step 504.

- 5 Alternatively (N), if no new channel is selected, it is checked in step 508 whether the user filter is to be shown and/or edited. If so desired (Y), the user filter may be shown and/or edited in step 509. Alternatively (N), if this is not desired, the method returns directly
10 to step 504.

It is thus possible to update a television receiver with the most recent information on transmitting specifications.

15

A preferred embodiment of the previously mentioned user filter and the channel table/current table will be described below.

- 20 Table 1 shows a preferred embodiment of the channel table/current table. The two tables have the same structure, and the current table may therefore easily be used for updating the channel table.

Link No.	Name	Freq.	Pol.	Pos.	ID	Update code	Inf.
1	tv3 DK	11,245	hor	1W	12589	17a	
2	tv3 NO	10,984	hor	1W	52879	17A	
3	Femman	11,245	ver	5E	45899	17A	
4	Canal+	12,023	ver	1W	21458	17A	
5	BBC	11,889	hor	1W	14587	17A	
.							
.							
.							
nn							

25

Table 1

Each item in table 1 is indicated as a row and comprises the fields: "Link No.", "name", "freq.", "pol.", "pos.", "ID"; "update code" and "inf.".

5 The field "name" indicates the official name of a given television channel as stated on the teletext page which is transmitted to the receiver. The field "freq." indicates the frequency on which the channel is transmitted. The field "pol" indicates the polarization of the signal
 10 on the channel. The field "pos." indicates the position at which the satellite transmitting the television channel may be found. The field "ID" is a unique identification number which is associated with a television channel. This means that if the channel is closed down, the
 15 identification number cannot be used again. The field "update code" indicates where the new information is. This means that if the current table for a given channel contains a number which is higher than a number in the corresponding field in the channel table, the item in the
 20 channel table will be updated. The field "inf." may be used for further information. Moreover, the table contains a field "Link No.". This field is used for linking items in table 1 to items in table 2.

25 Table 2 shows a preferred embodiment of the user filter.

No.	Name	Conceal	Link No.
1	tv3 DK	no	1
2	Min favorit	no	5
3	Femman	yes	3
4	tv3 Norge	no	2
5	Canal +	no	4
.		.	.
.		.	.
nn		.	nn

Table 2.

Each item in table 2 is indicated as a row and comprises the fields: "No.", "name", "conceal", "Link No.".

5 The field "name" is used for storing a channel name selected by a user. By means of the field "Link No." the item is associated with table 1, and the specific transmitting specifications may therefore be obtained from table 1 notwithstanding that the channel has been given a new name by the user. The field "conceal" is used for indicating whether a channel must be visible to the user or
10 not. This may be decided by the user himself. By concealing a channel instead of deleting it, the user will not be reminded that a new channel has been provided in connection with the automatic updating of transmitting
15 specifications, as described before.

The software of the individual receivers may be updated in fundamentally the same manner.

20 This is done by transferring the updated software data via the teletext pages, there being transmitted a code word to the individual teletext page which causes the contents of the teletext page to be replaced by the contents of the software which is to be used in the receiver. The individual receivers may be updated hereby,
25 without it being necessary to replace a fixed component, such as an EPROM, for the updating of the receiver. It should moreover be noted that it is not unusual that the software of the receivers must be replaced because of
30 changes in the entire satellite network.

In an alternative embodiment, the system according to the invention may be used for obtaining information on transmitting specifications via the Internet.

Although the invention has been explained in connection with a preferred embodiment of the invention, other embodiments are possible - without departing from the idea of the invention.

P a t e n t C l a i m s :

1. A method of updating transmitting specifications of
5 transmission channels, in particular satellite channels
in a plurality of television receivers (4), c h a r a c -
t e r i z e d in that the individual television
receivers (4) communicate via a communications channel
(24) with a database (18) containing data on transmitting
10 specifications of the individual channels, and that the
database (18) is capable of transferring the transmitting
specifications via the communications channel (24) to the
individual television receivers (4).
- 15 2. A method according to claim 1, c h a r a c t e r -
i z e d in that the database (18) currently monitors the
transmitting specifications of the individual channels
and currently updates these.
- 20 3. A method according to any one of claims 1-2,
c h a r a c t e r i z e d in that the updated transmit-
ting specifications are transferred via one or more spe-
cific teletext pages.
- 25 4. A method according to claims 1-3, c h a r a c t e r -
i z e d in that when a user selects a transmission chan-
nel, relevant transmitting specifications for the trans-
mission channel are selected from the transferred trans-
mitting specifications, and the relevant transmitting
30 specifications are used for tuning a circuit to receive
the selected transmission channel.
5. A method according to claims 1-4, c h a r a c t e r -
i z e d in that the transferred data are stored in a
35 storage, and that data are selected from the storage by
means of a user filter.

6. A method according to claims 1-5, c h a r a c t e r -
i z e d in that the data selected by the user filter are
presented to the user.

5

7. A method according to claims 5-6, c h a r a c t e r -
i z e d in that the user-defined filter comprises a
function making it possible for the user to conceal data
which are stored in the storage.

10

8. A method according to claim 7, c h a r a c t e r -
i z e d in that following transfer of transmitting
specifications in a storage about channels not known
before, these are presented to the user.

15

9. A method according to claims 5-6, c h a r a c t e r -
i z e d in that the user-defined filter is edited by
means of a screen, which may show a menu, and by means of
an operating panel.

20

10. A method according to claim 1 or 2, c h a r a c -
t e r i z e d in that updated software versions are ad-
ditionally transferred via the communications channel
(24) to the individual receivers.

25

11. A method according to claim 10, c h a r a c t e r -
i z e d in that the updated software versions are trans-
ferred via a teletext page specifically associated with a
channel, there being placed on the teletext page a code
which starts replacement of the normal contents of the
teletext page concerned by data in the form of the up-
dated software version.

30

12. An apparatus for updating transmitting specifica-
tions of transmission channels, c h a r a c t e r i z e d
in that the apparatus has two storages (21, 22), of which

35

the first storage (21) contains data on the transmitting specifications of the individual channels, from which a user may transfer channel selection via an operating unit (19) to a tuner in the apparatus, while the second storage (22) may receive data from a database (18) containing updated and current transmitting specifications on the individual channels, and may transfer these transmitting specifications to the first storage.

10 13. An apparatus according to claim 12, characterized in that the transfer of data between the two storages takes place without the involvement of the user.

15 14. An apparatus according to claim 12 or 13, characterized in that it additionally contains a circuit array adapted to receive a teletext page whose contents have been changed by a supplier for transferring an updated software version in the receiver.

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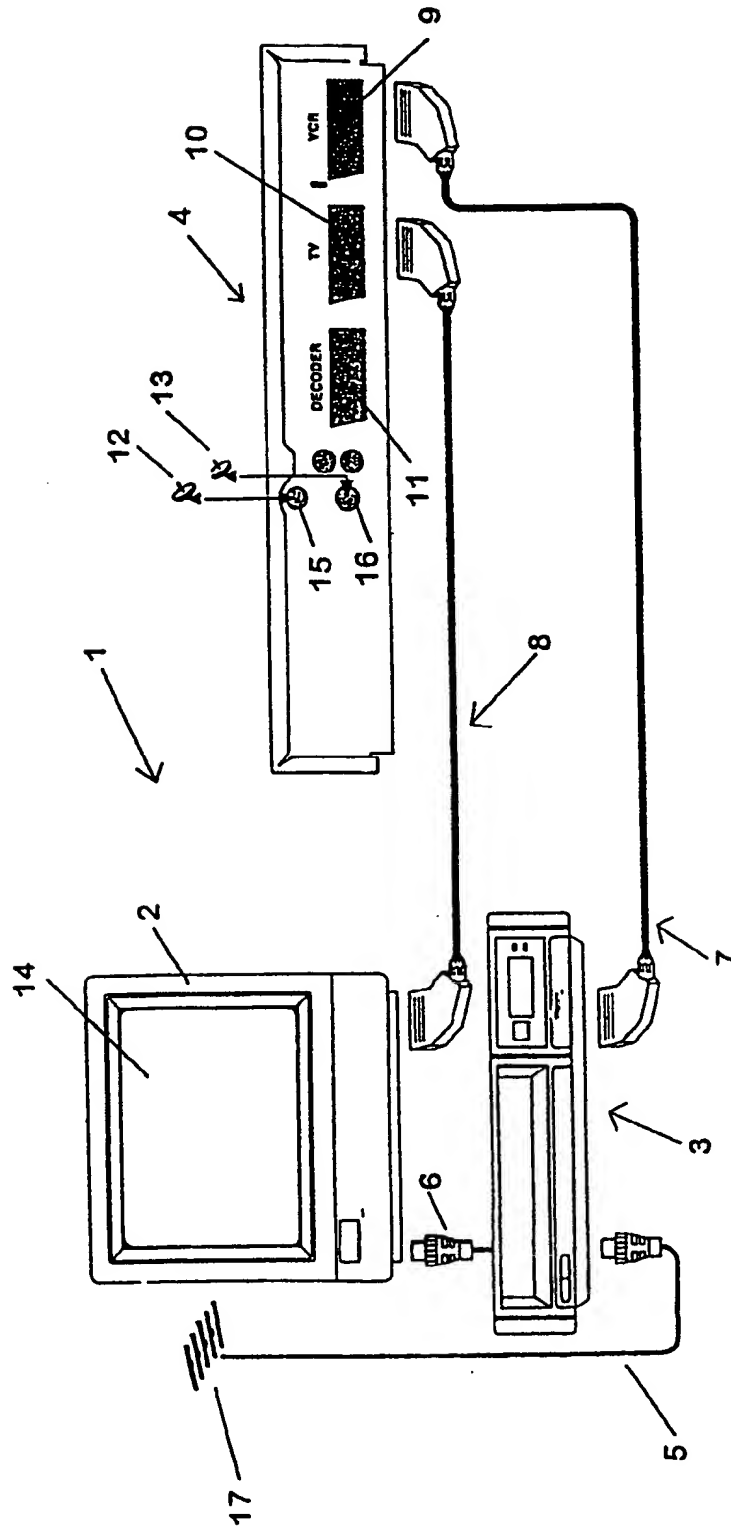


FIG. 1

2/5

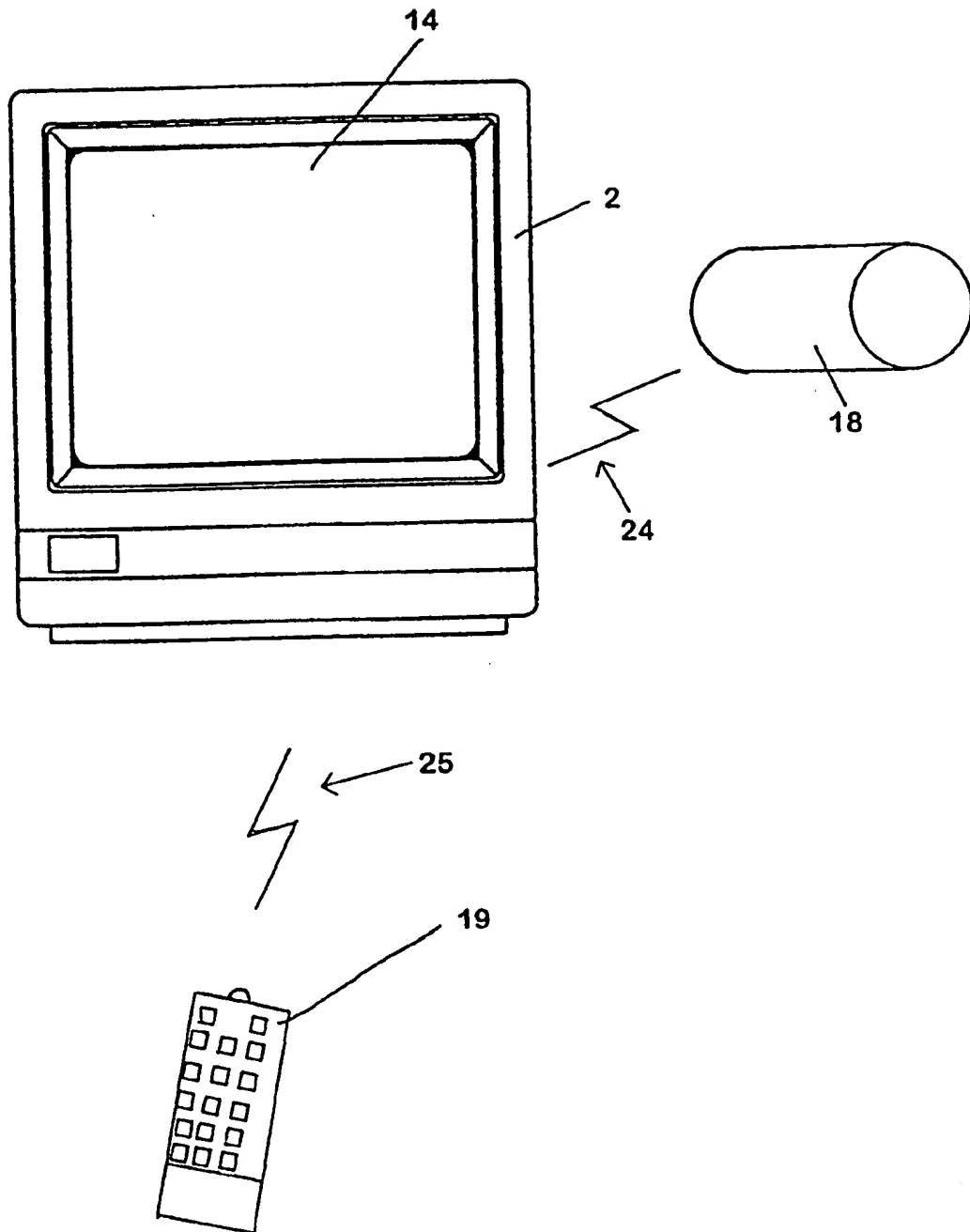


FIG. 2

3/5

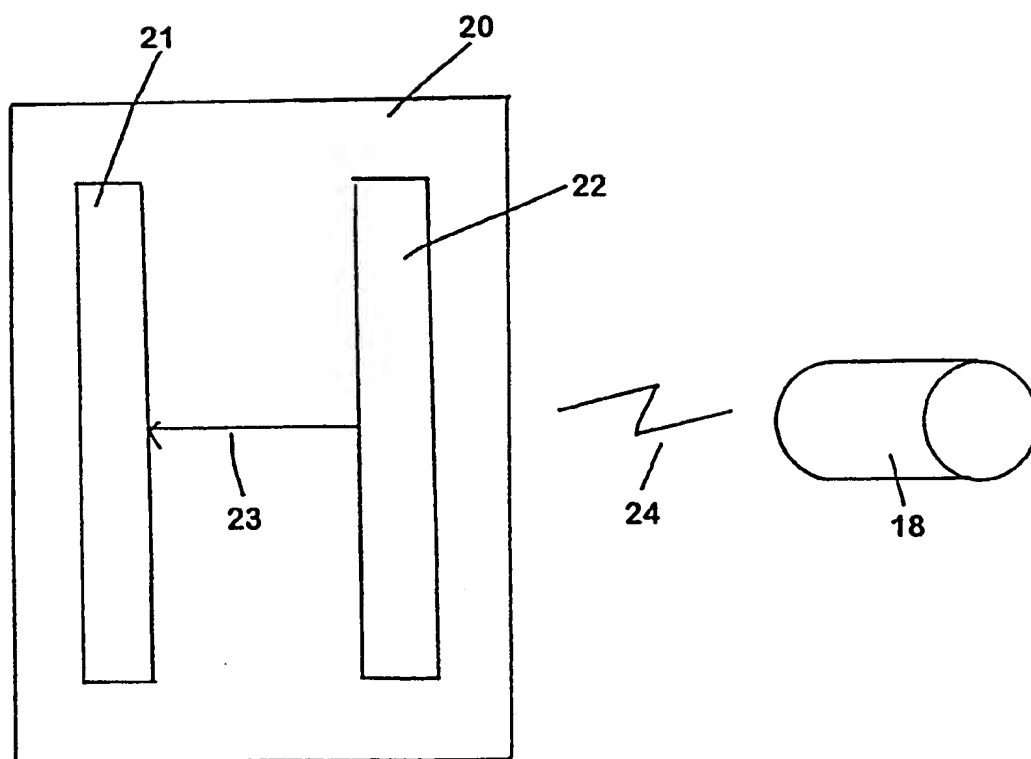


FIG. 3

4/5

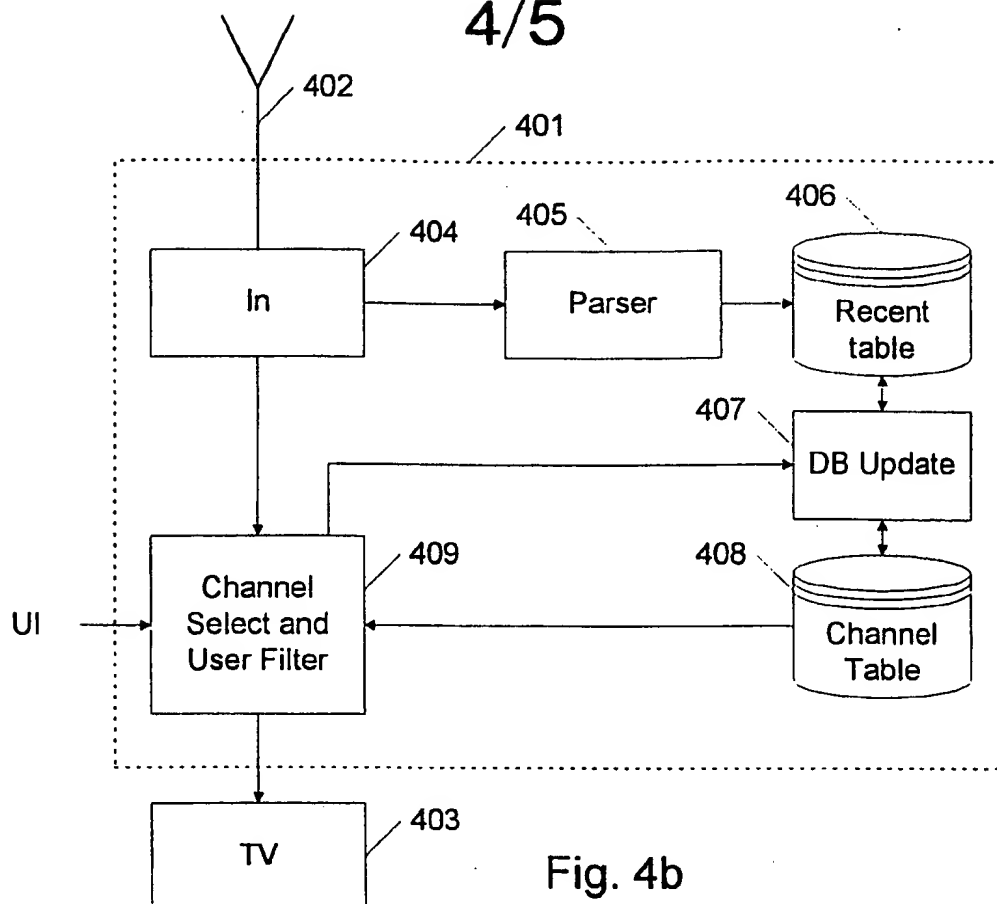


Fig. 4b

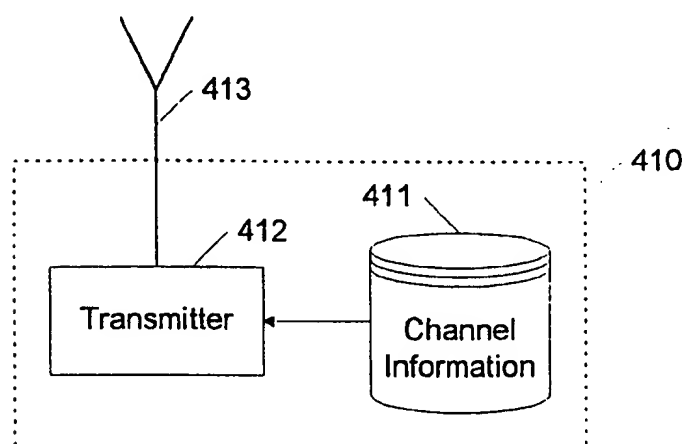


Fig. 4a

5/5

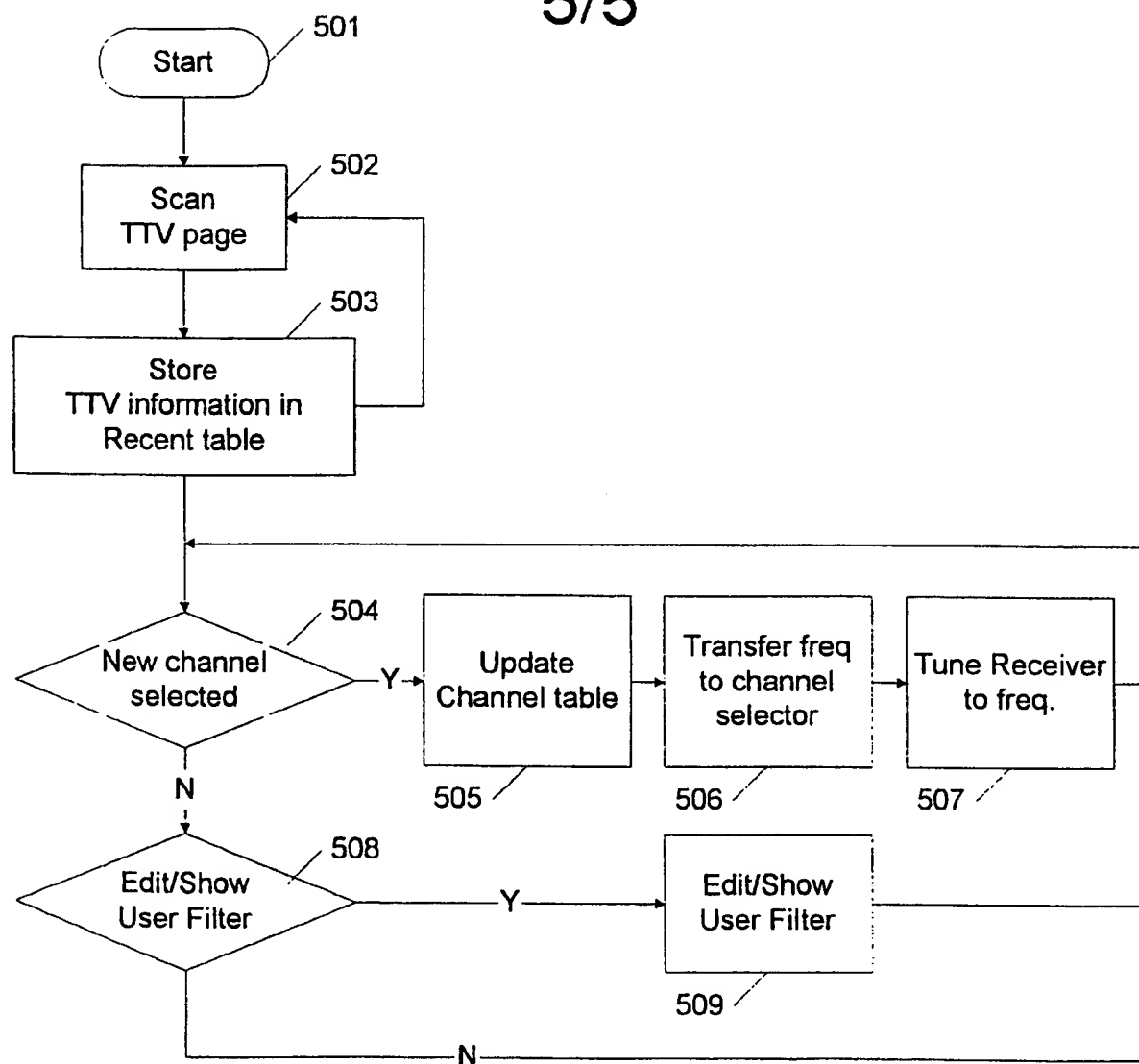


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 98/00525

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: H04N 7/173, H04N 5/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	JP 10032467 A (NEC HOME ELECTRON LTD), 3 February 1998 (03.02.98), abstract	1
P,A	--	2-14
P,A	JP 9322082 A (NEC HOME ELECTRON LTD), 12 December 1997 (12.12.97), abstract	1-14
A	JP 9172581 A (NEC CORP), 30 June 1997 (30.06.97), abstract	1-14
A	US 5594510 A (SHIGETO SAKAKIBARA), 14 January 1997 (14.01.97), abstract	1-14

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 10032467 A	03/02/98	NONE	
JP 9322082 A	12/12/97	NONE	
JP 9172581 A	30/06/97	NONE	
US 5594510 A	14/01/97	JP 8195916 A US 5771080 A	30/07/96 23/06/98